

# Utah Department of Transportation Traffic Management Division

February 2016  
Monthly Report



2060 South 2760 West Salt Lake City, Utah 84104 801-887-3710 [www.udottraffic.utah.gov](http://www.udottraffic.utah.gov)

## Mission of the Traffic Management Division

- To Support UDOT and the Department of Public Safety to Achieve Zero Fatalities.
- To Help Provide Reliable and Efficient Travel Throughout Utah.
- To Provide Useful and Timely Real-time Traffic Information.
- To Work Together with Other Government Agencies to Serve the Public.
- To Provide Excellent Customer Service.

## Traffic Operations Center



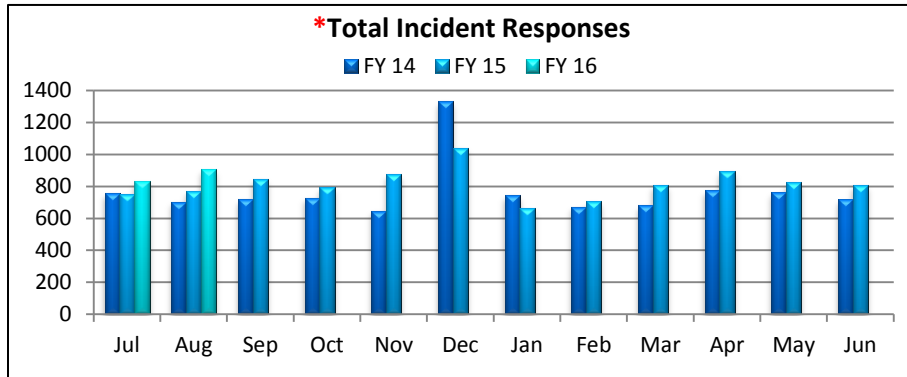
## Field Devices Summary

Freeway PTZ Cameras	380
Surface Street PTZ Cameras	462
RWIS & Contracted Weather Cameras	215
Viewable Detection Cameras	59
Total Cameras	1,116
Freeway VMS	97
Surface Street VMS	51
Portable TOC VMS	7
Legacy Trucks Prohibited VMS	21
Variable Speed Limit VMS	15
Chain-Up Signs	19
Total VMS	210
HAR (27 permanent/5 portable)	32
RWIS	95
Ramp Meters	63
TMS	538
Express Lane Plazas	73
Traffic Signals	2,132

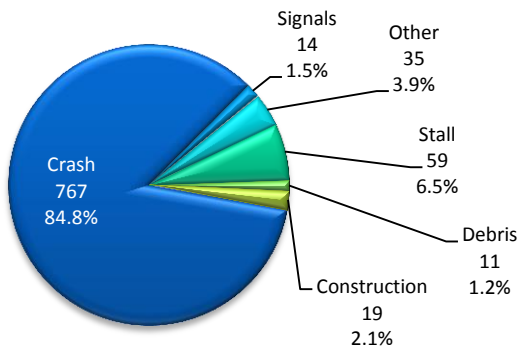
## Operations Summary

VMS Messages Displayed	84,041
Signal Timing Work Orders	16
Signal Maintenance Work Orders	133
All New Work Orders	440
Work Orders Closed During the Month	535
Incident Responses by the TOC	905
Incident Duration Average Minutes	58
IMT Assists	1,675
Website Visitor Sessions	230,466
511 Calls	20,976
Weather Desk Calls	616
Ask Commuterlink Questions	57
Average Speed AM Peak (07:00-08:00)	66.81
Average Speed PM Peak (17:00-18:00)	64.56
Incidents Using Signal Timing Assistance	105
UDOT Traffic Followers and Re-tweets	400,378
UDOT Traffic App Total Downloads	8,683

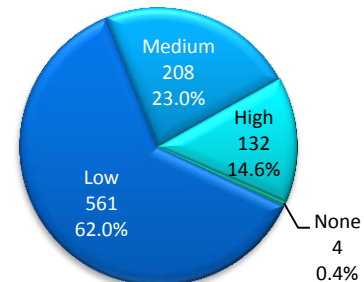
An incident response occurs each time an incident is recorded in the ATMS system. These can be of several types, including crash, construction, debris, stall, congestion, or other. Crashes are separated into three subcategories: property damage, personal injury, and fatal. Each time an incident is created, information is sent to the 511 system, the website, and to the public through email alerts. An incident remains active until it has been completely cleared from the roadway.



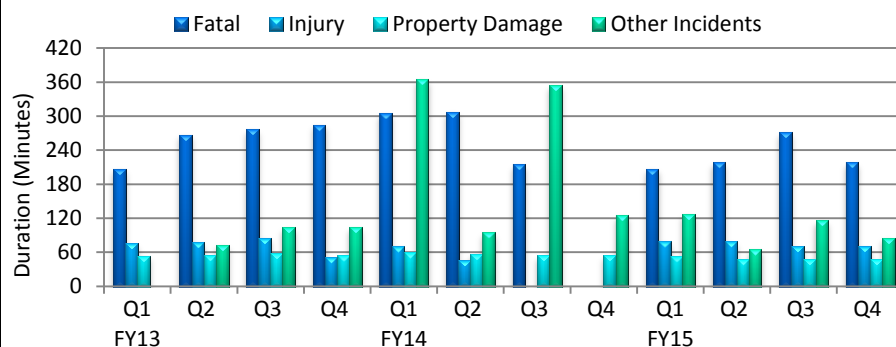
**\*Incidents By Type for August 2015**



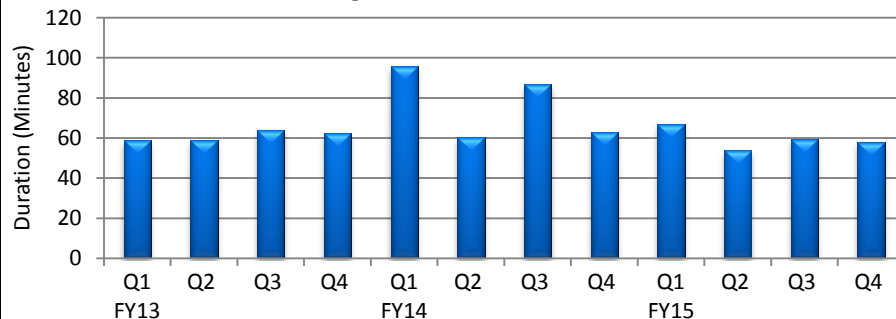
**\*Incidents by Severity for August 2015**



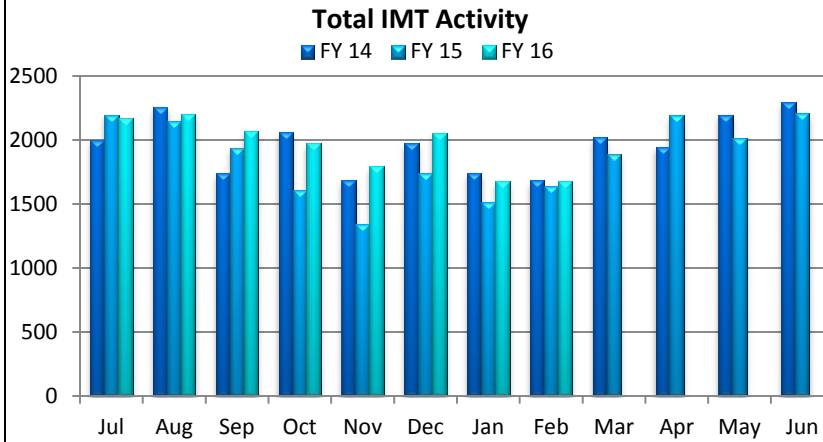
**\*Average Crash Duration**



**\*Average Duration of All Incidents**

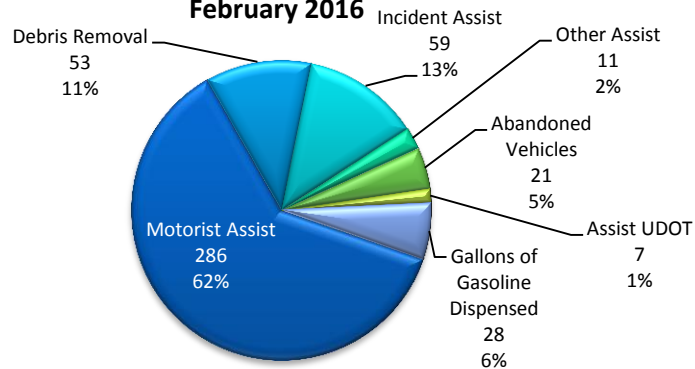


## Incident Management Team (IMT) Activities



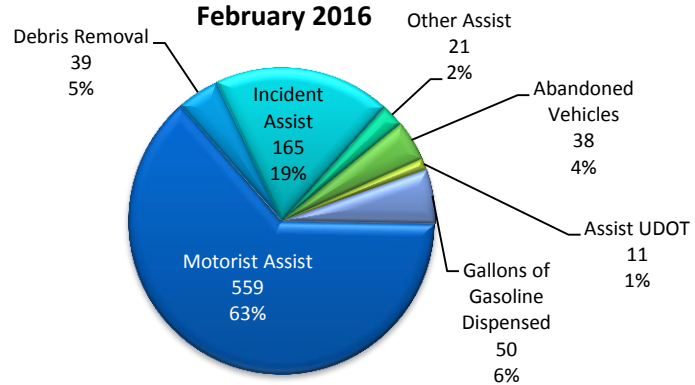
### IMT Activities by Type for UDOT Region 1

February 2016



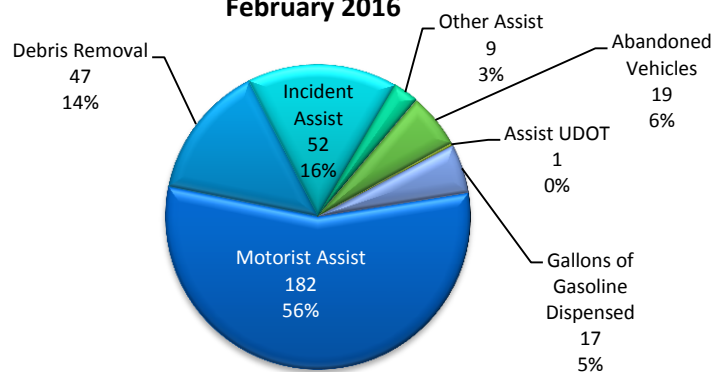
### IMT Activities by Type for UDOT Region 2

February 2016



### IMT Activities by Type for UDOT Region 3

February 2016



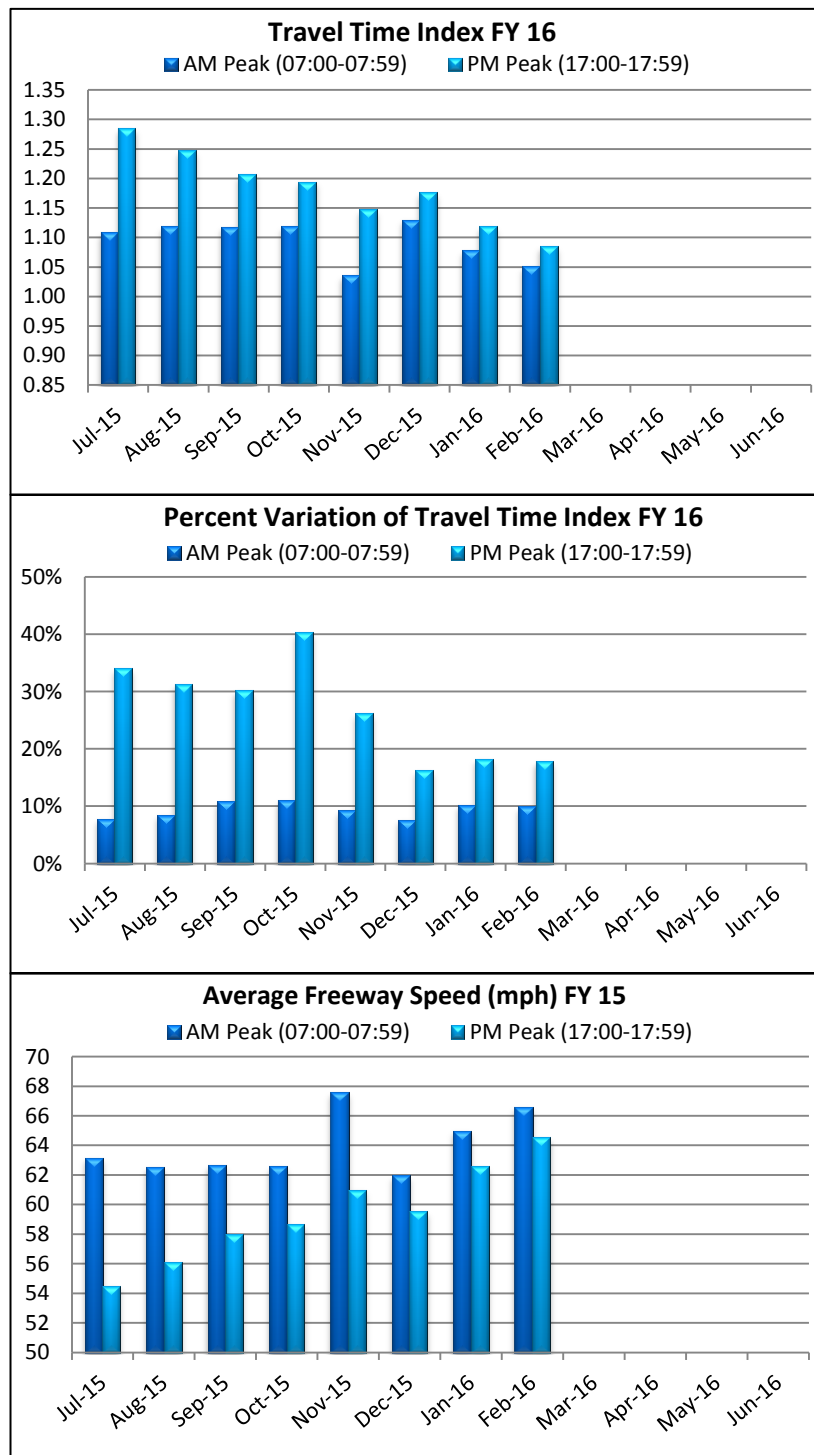
## Freeway Traffic Level of Service

Freeway flow measures are taken from the Traffic Monitoring Stations (TMS) located throughout the Wasatch Front. As more TMS sites are installed throughout the state, they will be included in these performance measures.

**Travel Time Index:** This measure of mobility is based on freeway speeds and is weighted by segment lengths and by the traffic volume. A value of 1.0 represents free-flow speeds. A value of 1.12 indicates that the average vehicle trip takes 12% longer than if that were the only vehicle on the freeway.

**Percent Variation of Travel Time Index:** The percent variation in the Travel Time Index is a measure of how much the Travel Time Index changes from day-to-day.

**Average Freeway Speed:** The freeway speed is weighted by volume.



## Freeway Traffic Level of Service

### Peak Travel Time Index by Segment for February 2016

(+) Direction (NB, EB, Clockwise)

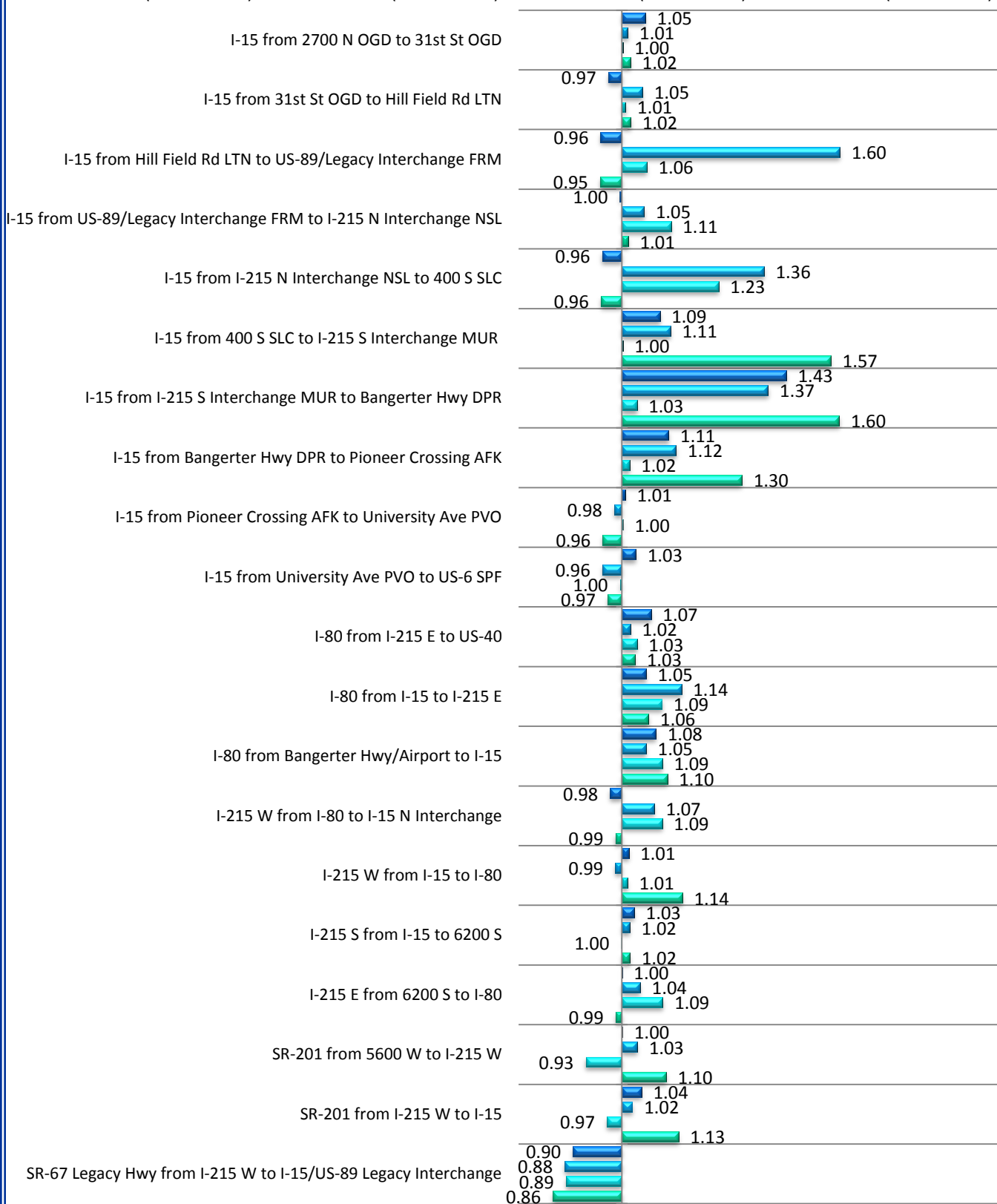
(-) Direction (SB, WB, Counter Clockwise)

■ AM Peak (07:00-07:59)

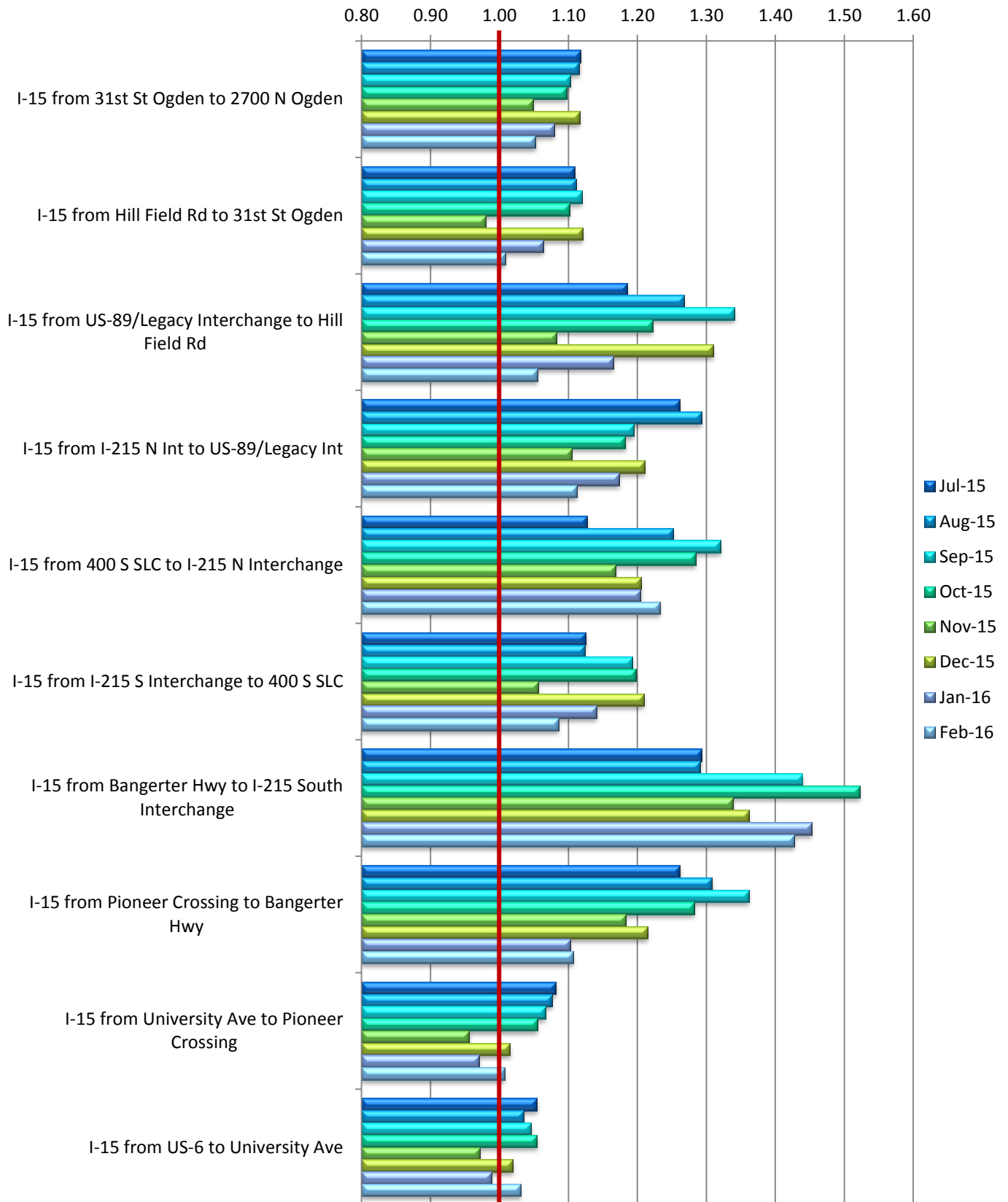
■ PM Peak (17:00-17:59)

■ AM Peak (07:00-07:59)

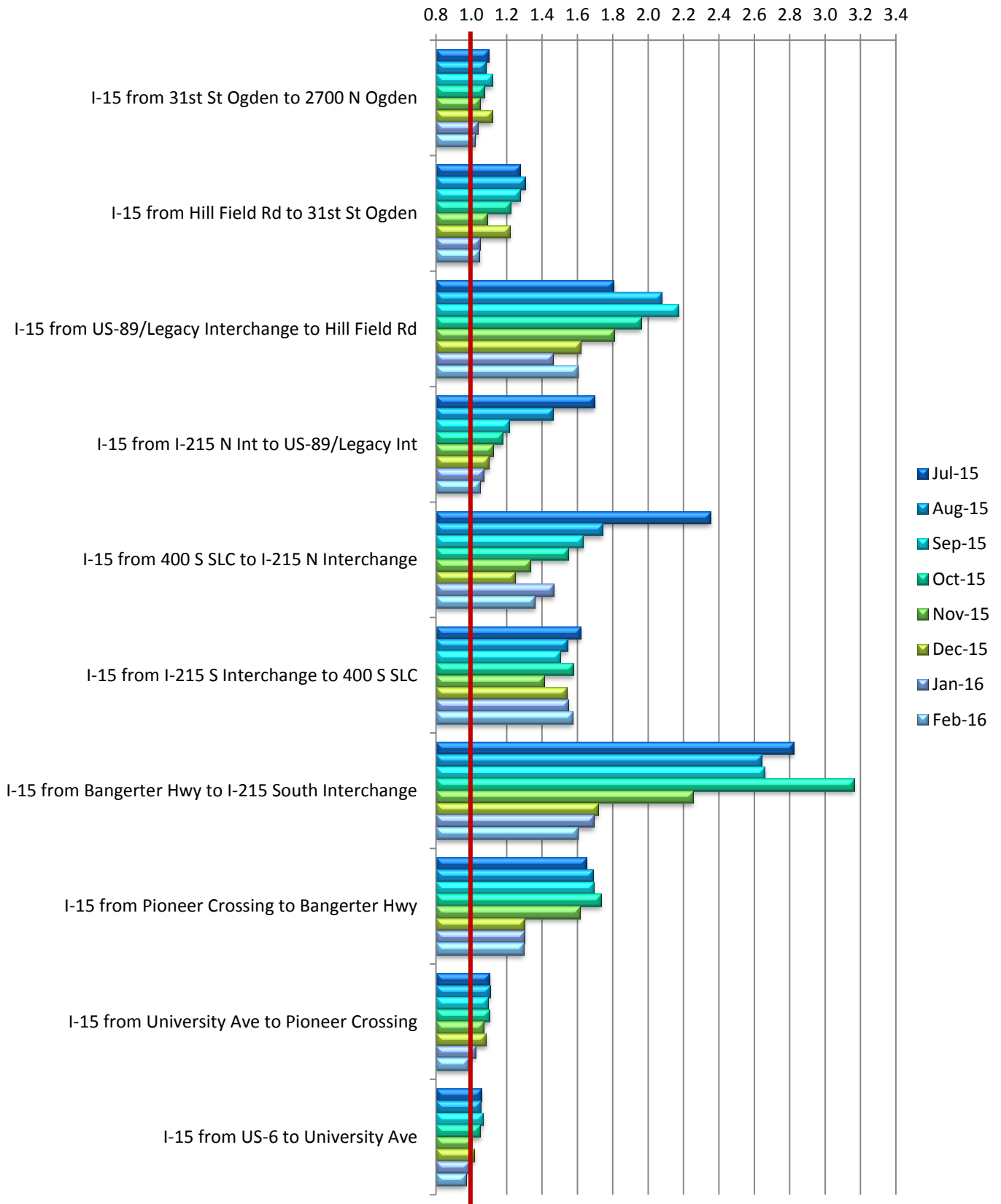
■ PM Peak (17:00-17:59)



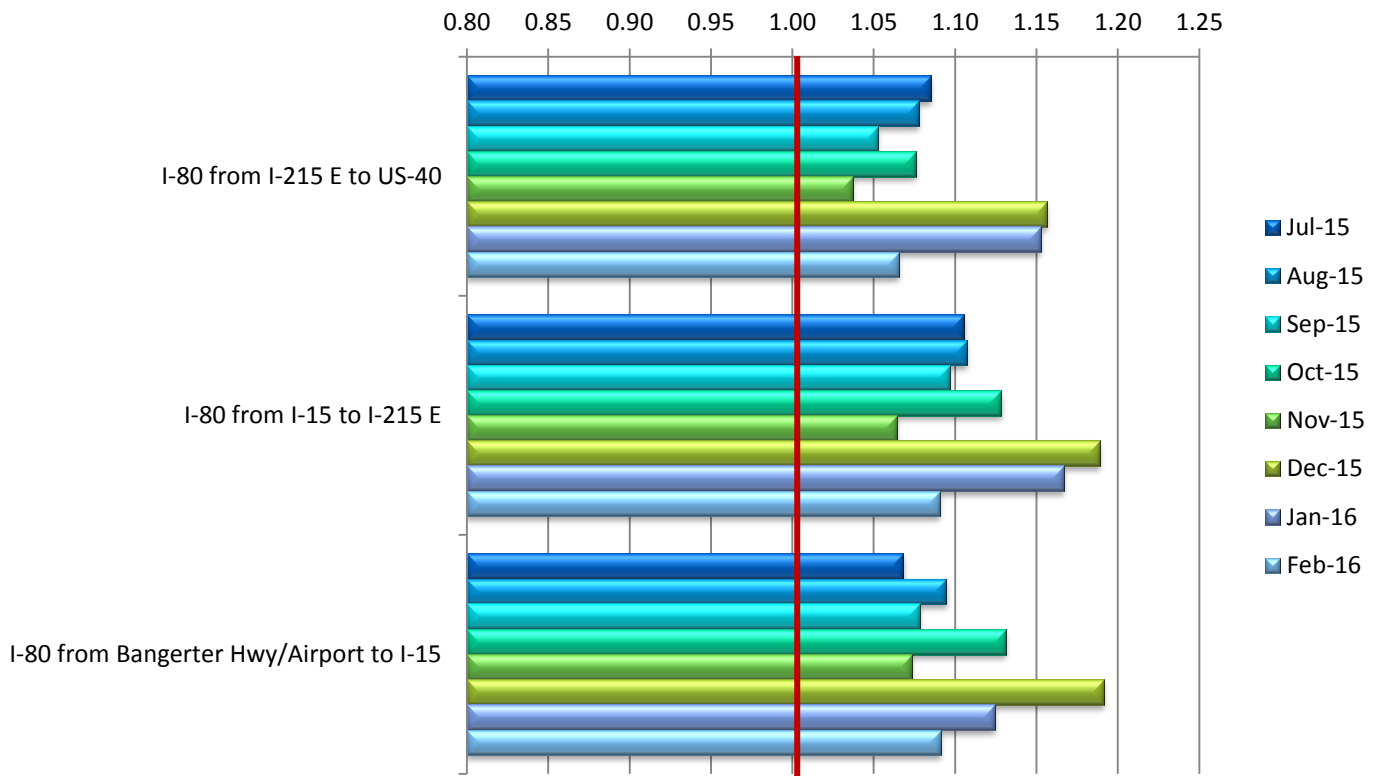
### AM Peak Travel Time Index for I-15 FY 16



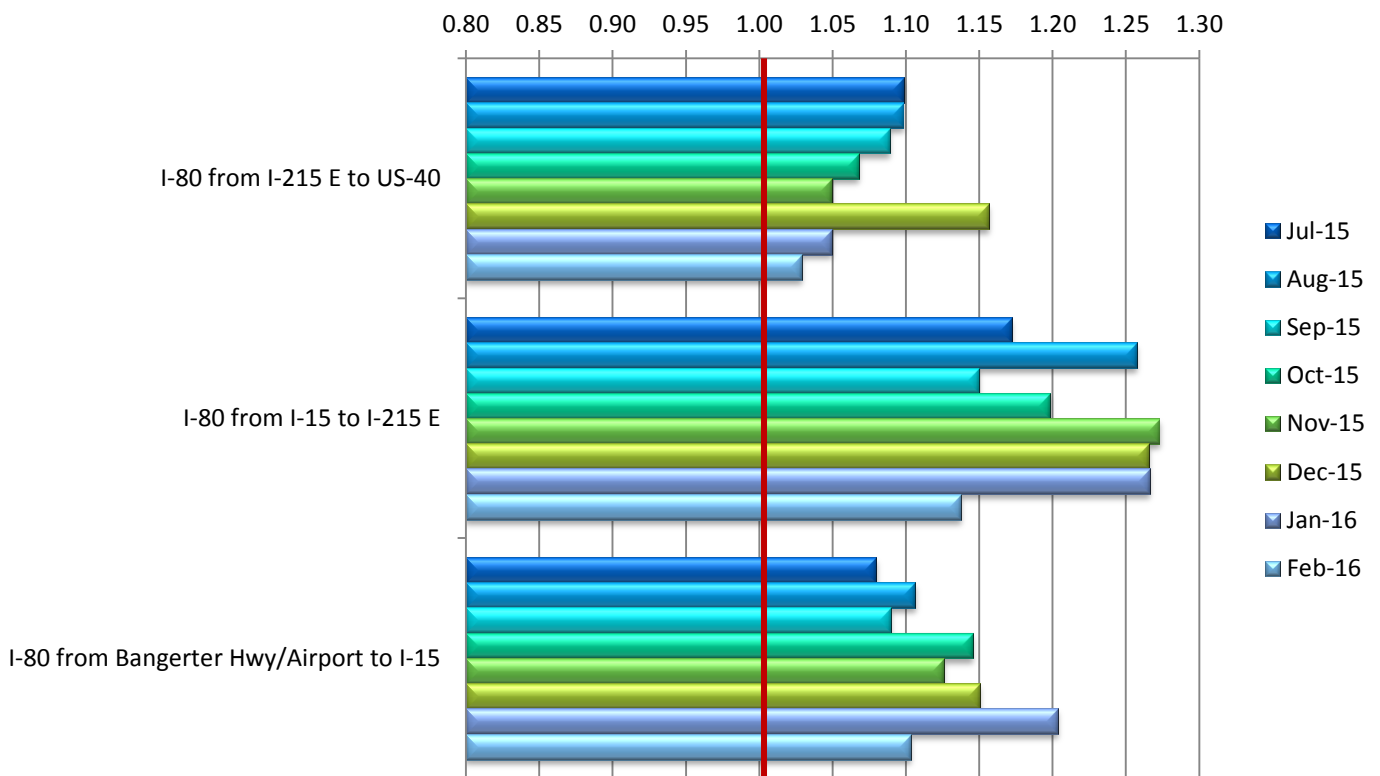
### PM Peak Travel Time Index for I-15 FY 16



## AM Peak Travel Time Index for I-80 FY 16

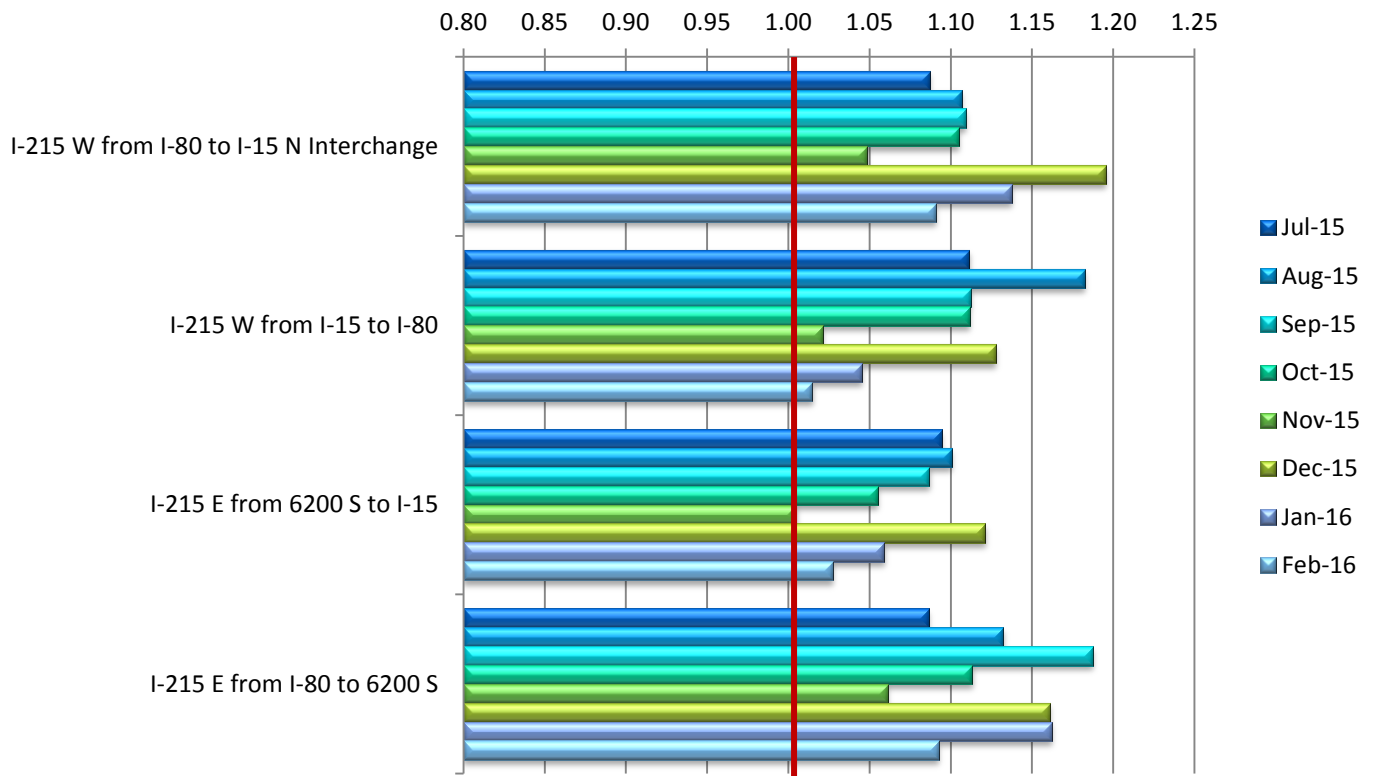


## PM Peak Travel Time Index for I-80 FY 16

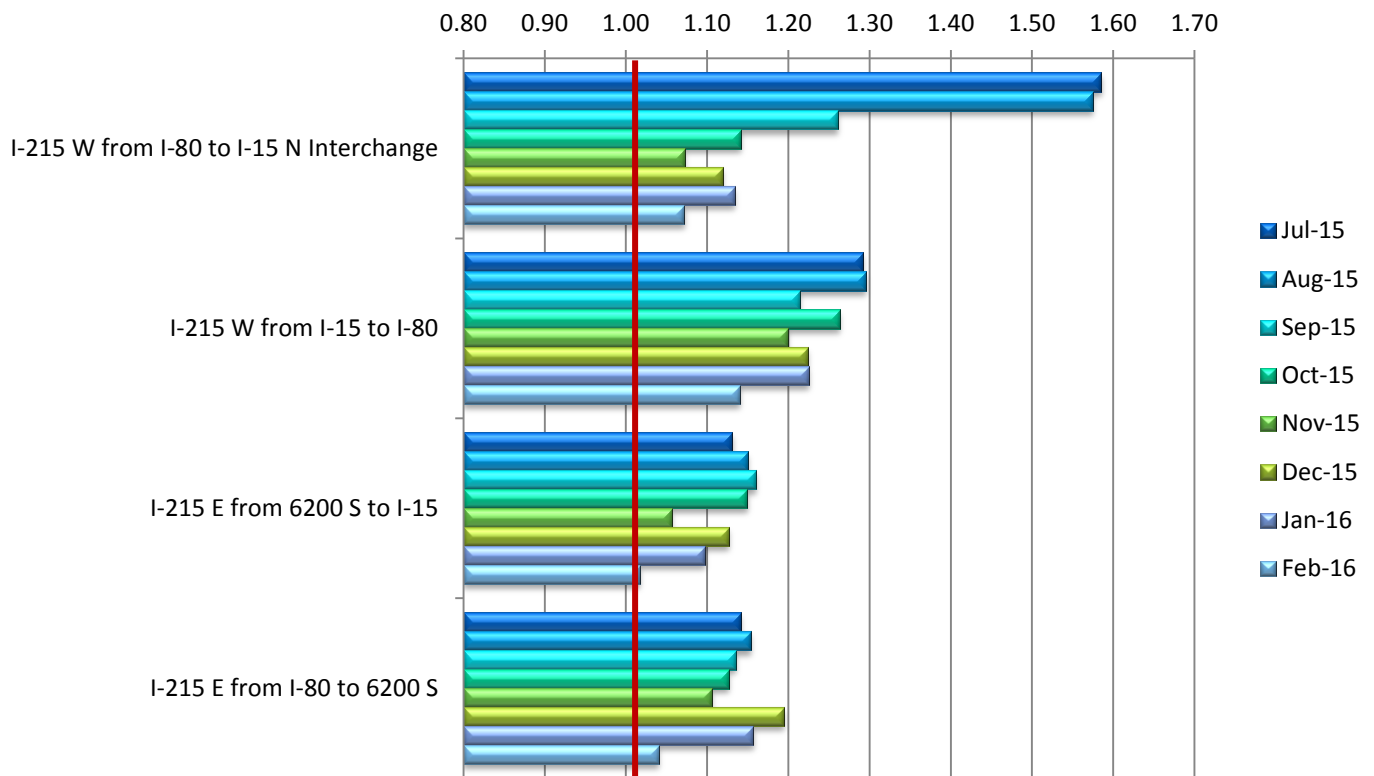




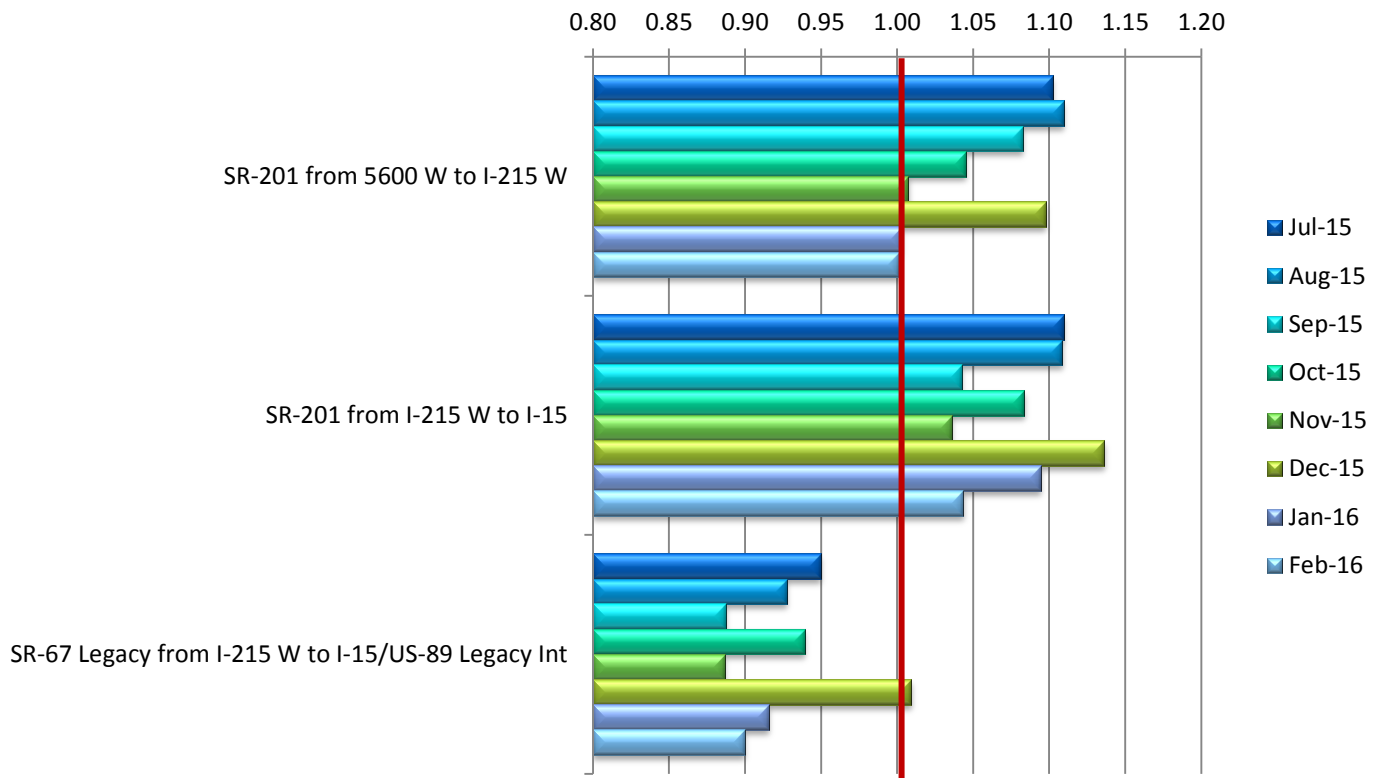
## AM Peak Travel Time Index for I-215 FY 16



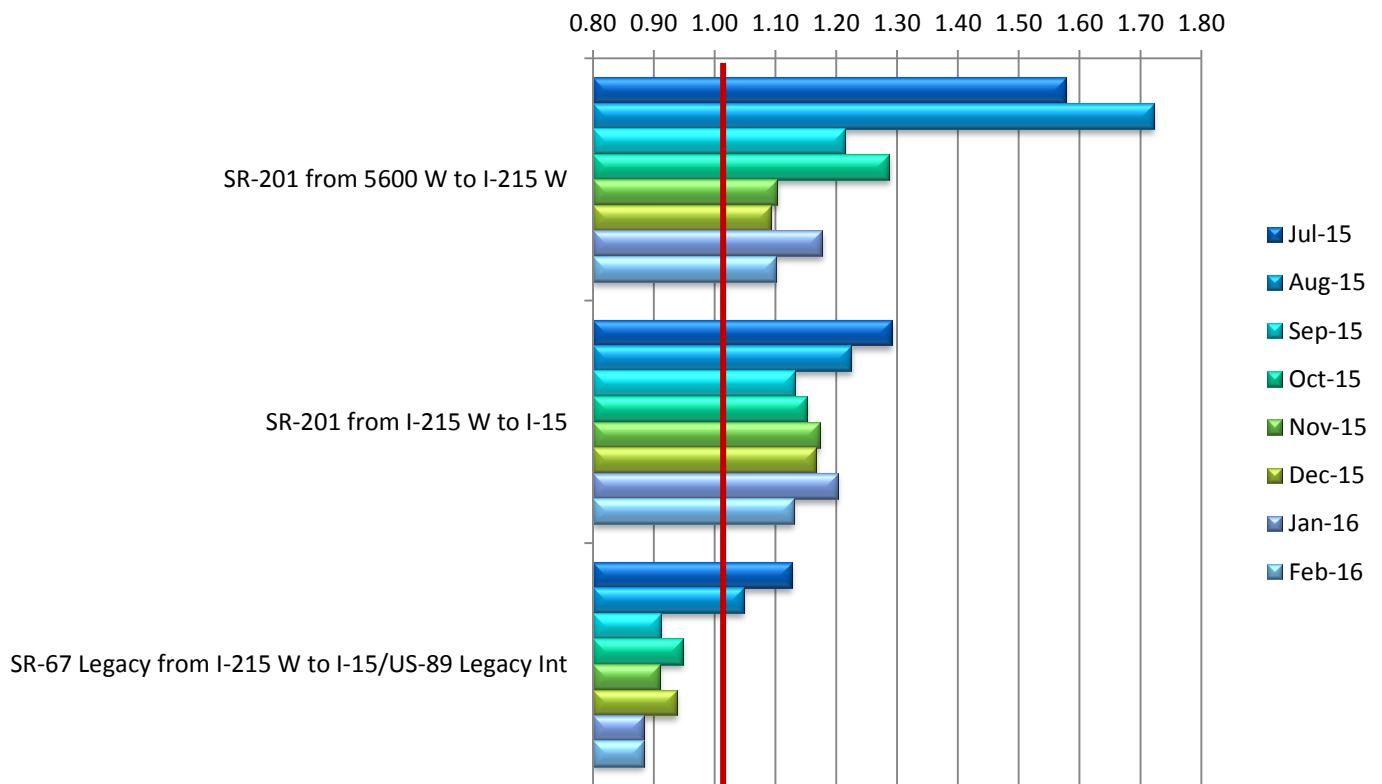
## PM Peak Travel Time Index for I-215 FY 16



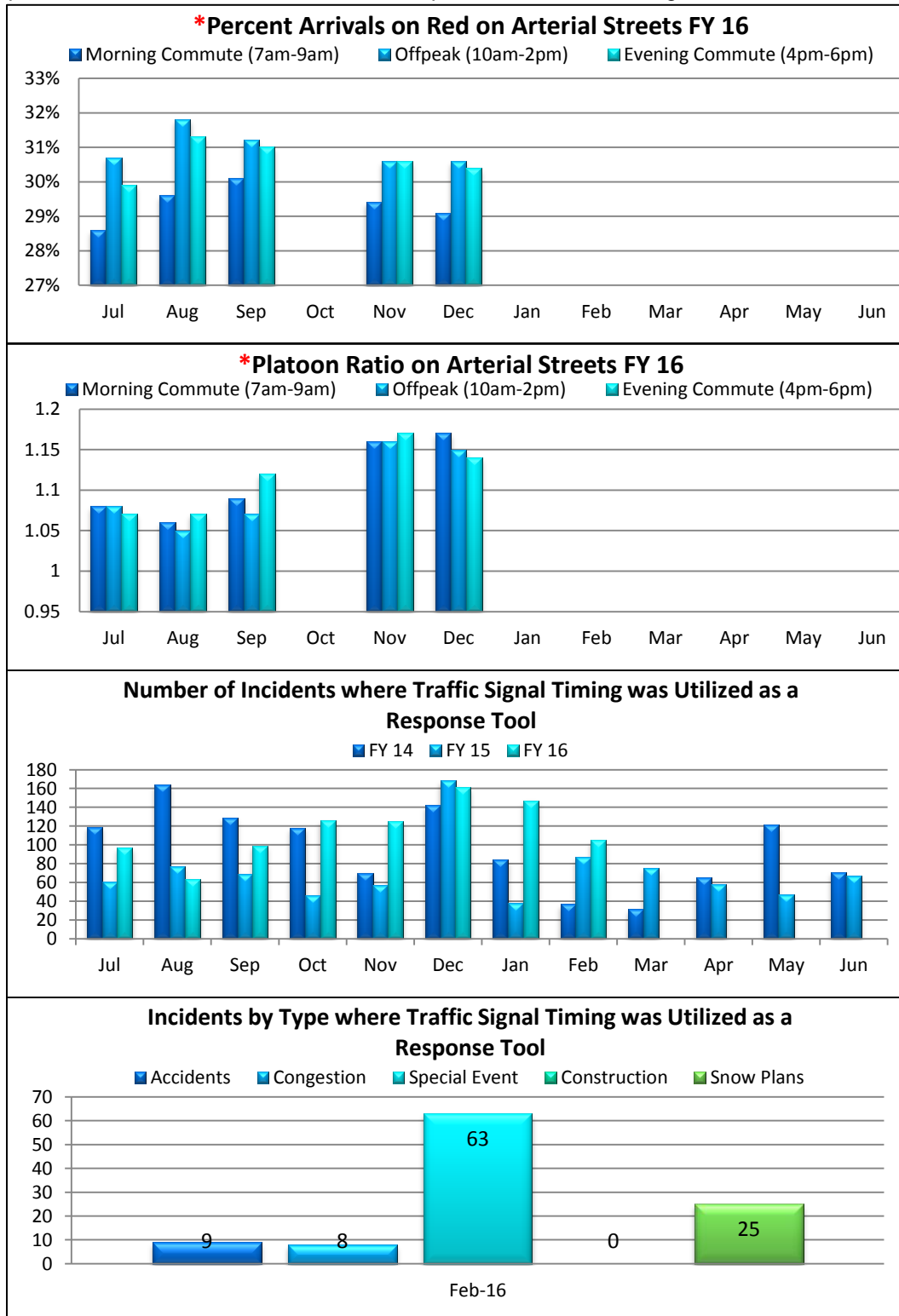
### AM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 16

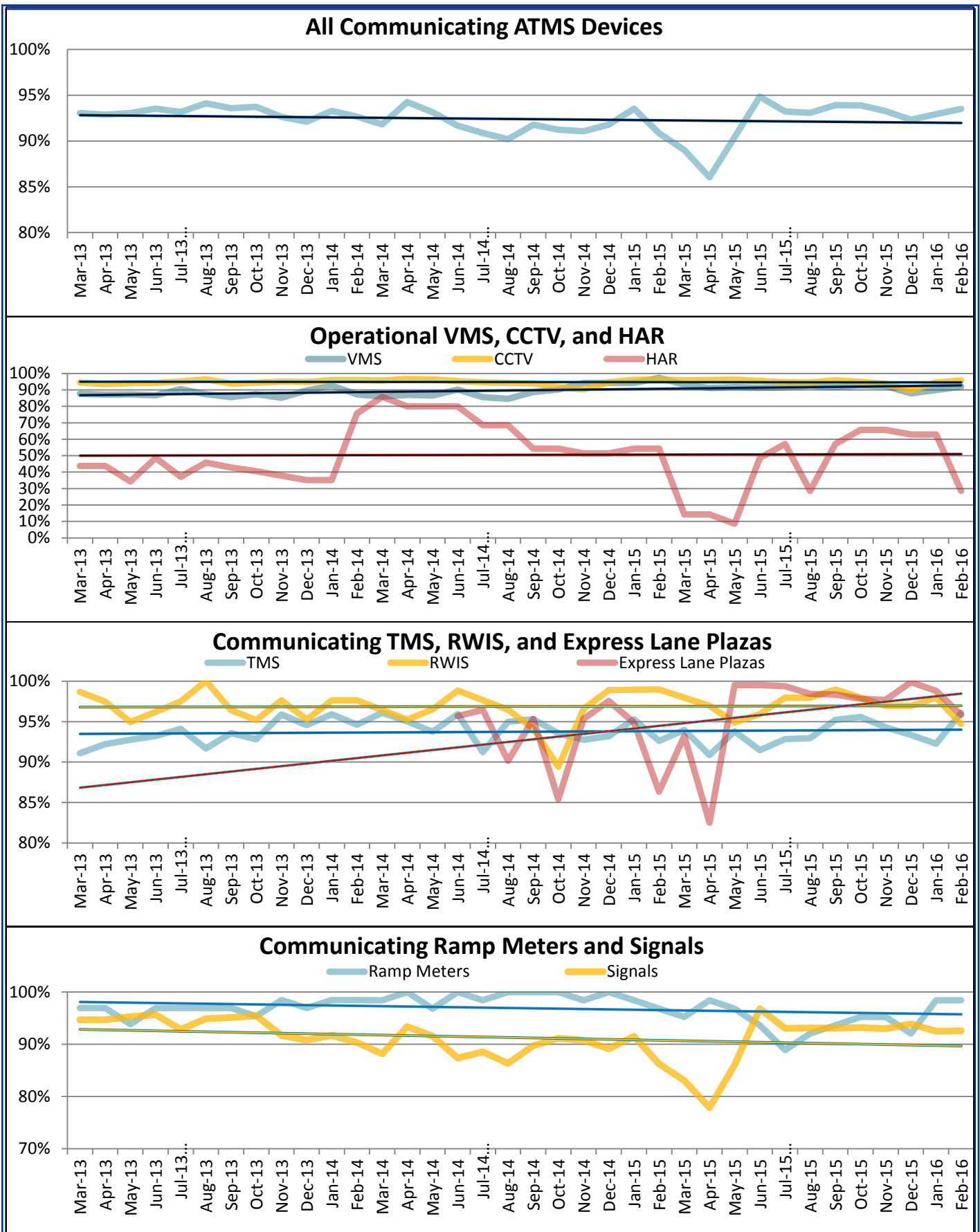


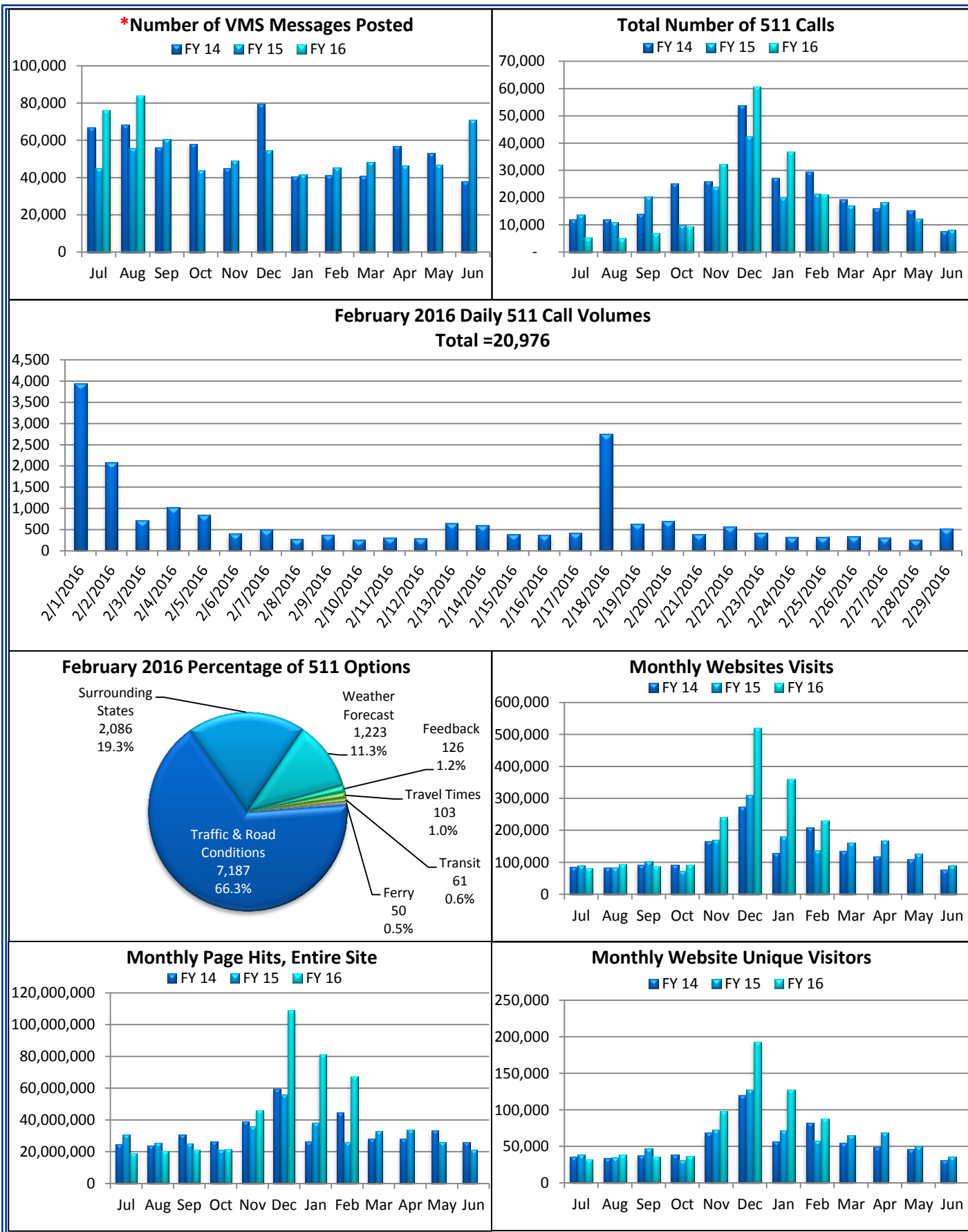
### PM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 16



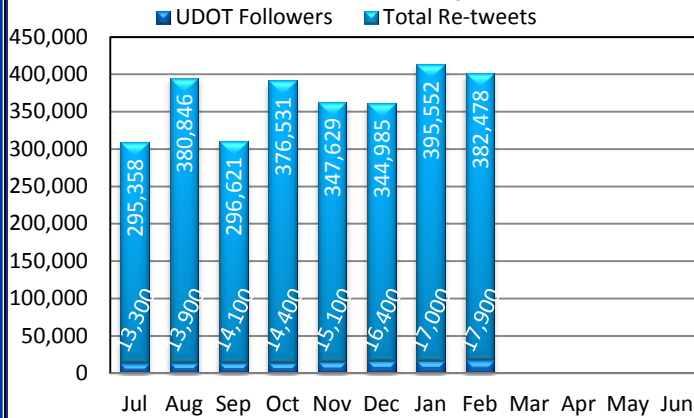
The percent arrival on red along the arterial statistics are generated automatically through the automated traffic signal performance measures, which show real-time and historical functionality at signalized intersections. The system automatically time-stamps when each vehicle arrives at the intersection and then compares the detection time-stamp if the phase was green or red. The percent arrival on red data is averaged over the 24 hours of the day and days in the month. . The lower charts shows the number of incidents where traffic signal timing was modified in order to help traffic flow around closed lanes, or to help relieve excessive congestion.



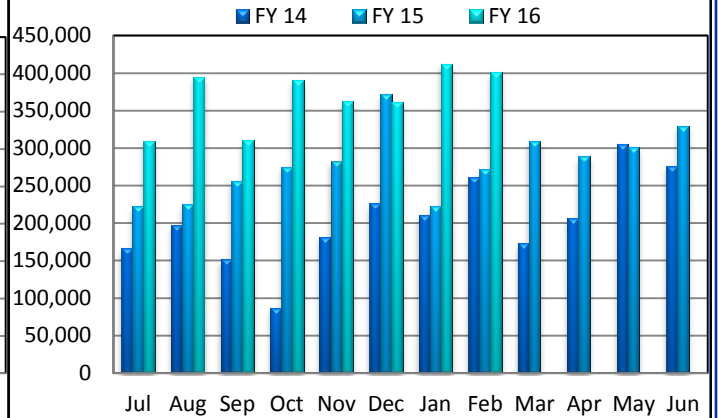




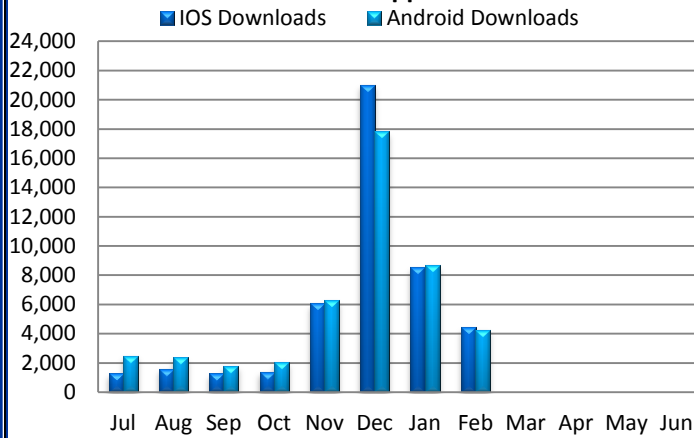
## UDOT Traffic Twitter Activity - FY 16



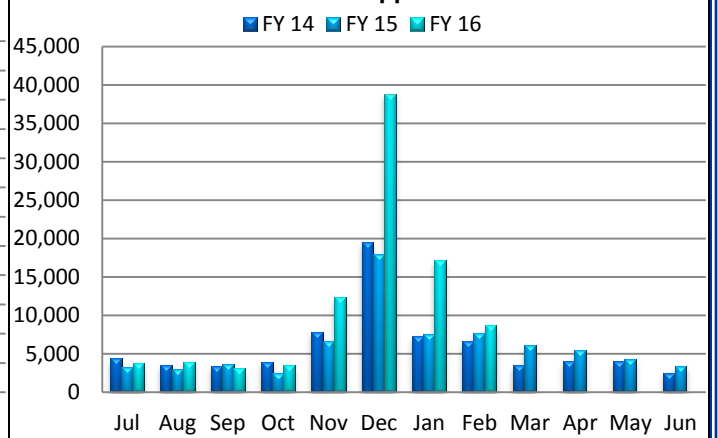
## UDOT Traffic Followers and Re-tweets



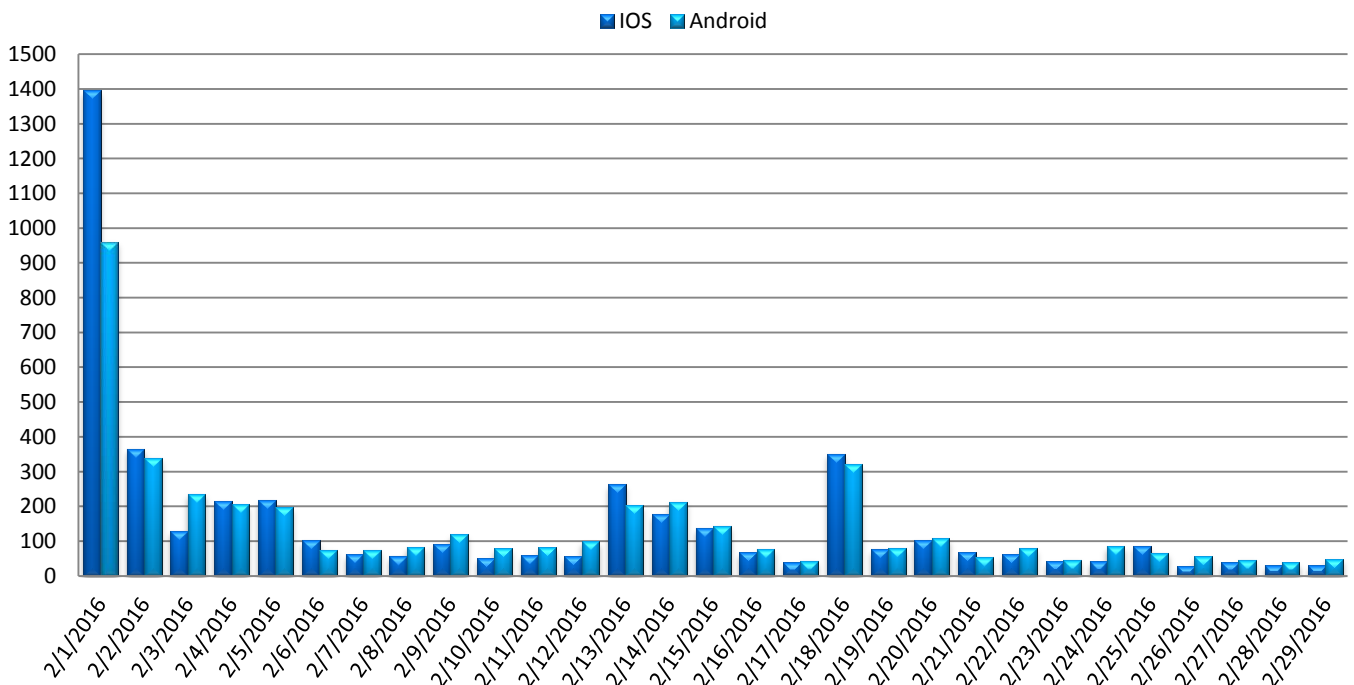
## UDOT Traffic App - FY 15



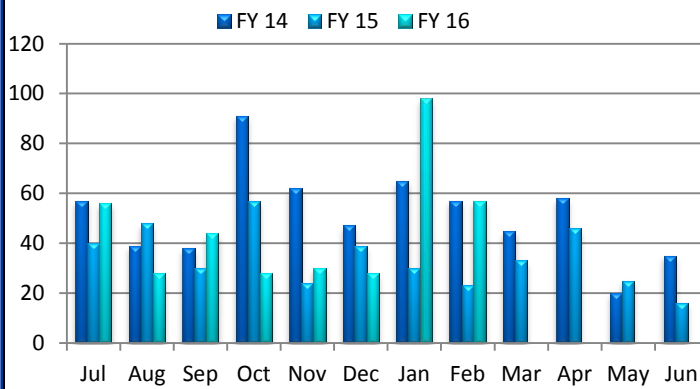
## UDOT Traffic App Downloads



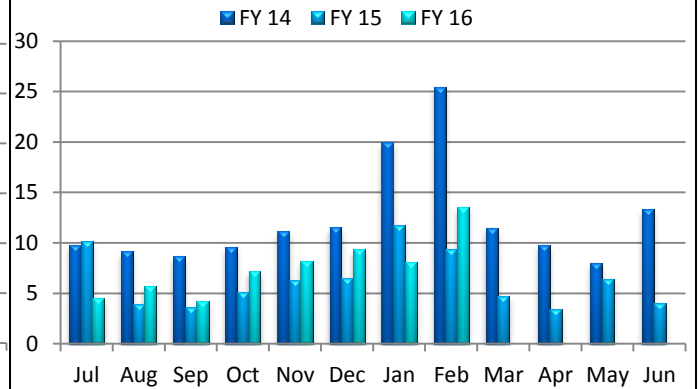
## UDOT Traffic App Downloads - February 2016



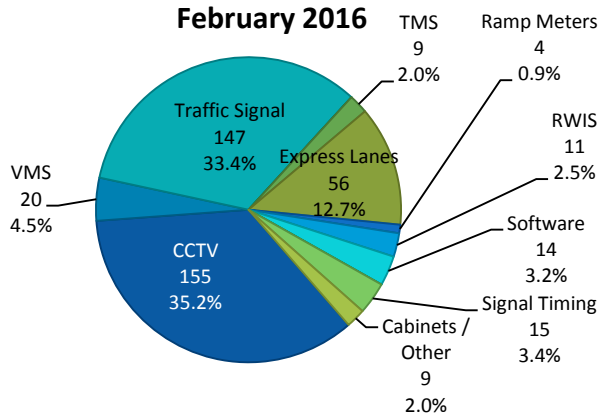
## Number of "Ask UDOT Traffic" Questions



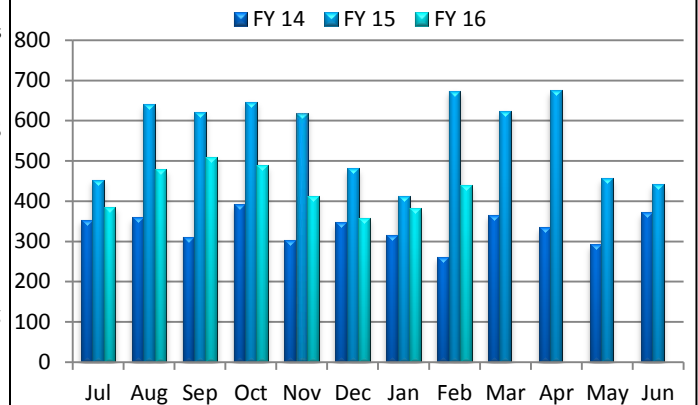
## Overall Average Work Order Turnaround Days



## New Work Orders by Device Type February 2016

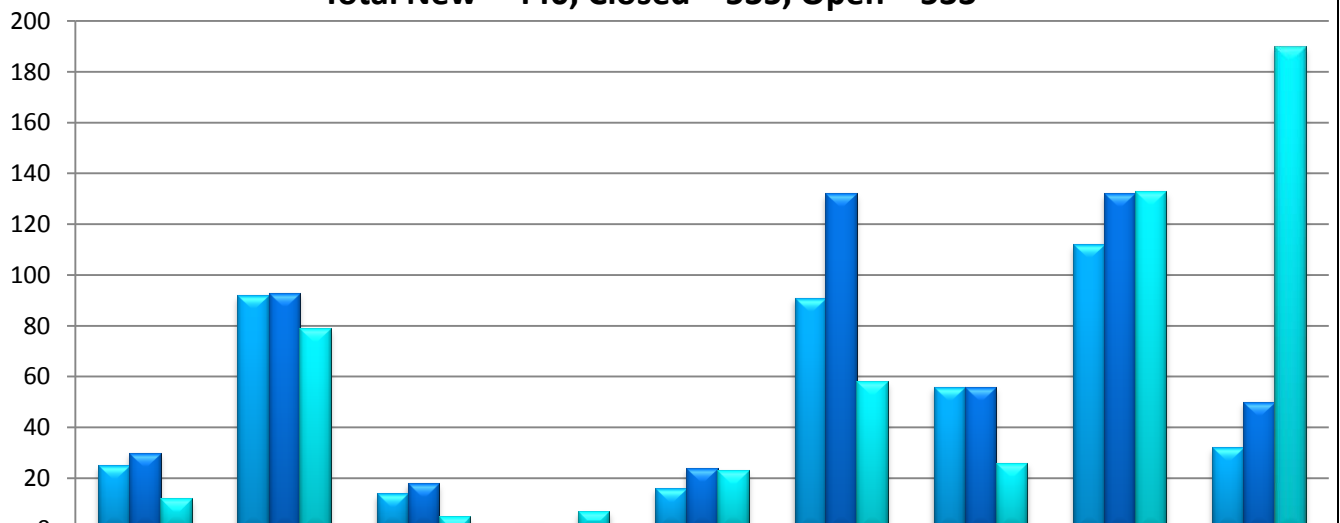


## Number of New Work Orders

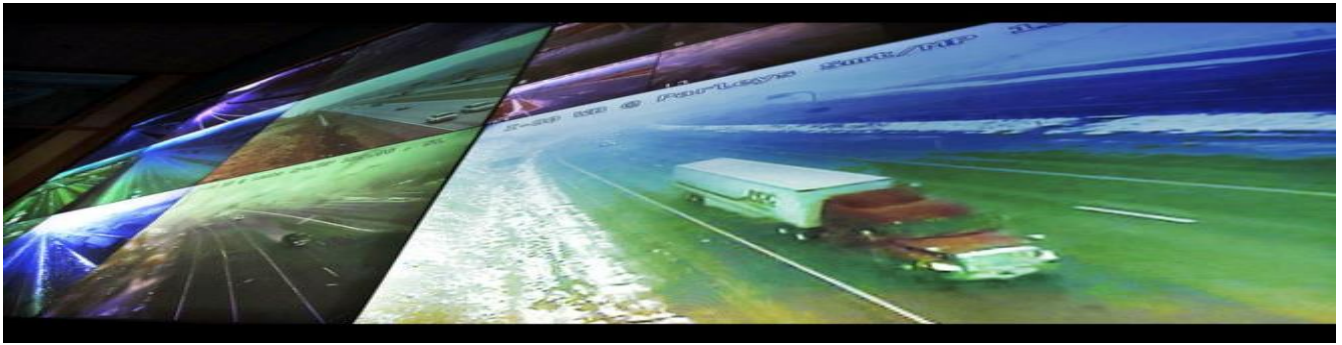


## Work Order Statistics by Group - February 2016

Total New = 440, Closed = 535, Open = 533



	R1 Signal Maintenance	R2 Signal Maintenance	R3 Signal Maintenance	R4 Signal Maintenance	Signal Timing	ATMS	Express Lanes	ISS	Other / Engineering / Contractor
New	25	92	14	2	16	91	56	112	32
Closed	30	93	18	0	24	132	56	132	50
Open	12	79	5	7	23	58	26	133	190



### CONTROL ROOM

The operators managed 1188 incidents and handled 1381 phone calls in addition to daily tasks of posting VMS messages, emergency alerts, 511 messages, monitoring events, adjusting signal timing plans and registering work orders for ATMS maintenance. The TOCL was activated eight times during the month. In addition to weather conditions within the state, the control room team supported several road closures in Wyoming, Arizona and Colorado. VMS Message Mondays, PSA messages, and air quality alerts were posted throughout the month.

The control room team supported the I-15 Point Project, several maintenance construction projects, and closures on I-15 along the Virgin River Gorge in Arizona.

Kurt Lauer and Don Feld have joined the TOC operators this month.



### TRAVELER INFORMATION

Traveler Information team assisted UDOT Communications with media stories regarding connected vehicles, hosted a TOC tour for Salt Lake County Child Services, and managed meetings with UDOT Central Construction for the Lane Closure Initiative.





### WEATHER INFORMATION

UDOT Weather Group had 468 overall weather interactions, 173 outgoing weather alerts, six NWS collaborations and 19 road weather alerts.

#### Climatology

Overall, temperatures were above normal while precipitation was below normal, statewide. Several areas in central Utah however, had cooler than average temperatures with above average precipitation. Only 3.8 inches of snow fell at the Salt Lake Airport, which was well below the 13.7 inch average. A major wind storm caused truck traffic on I-80 to be restricted for several hours on February 18.

#### Weather Operations

Verizon Wireless employees, Regional Integrated Transportation Information System, employees of Econolite, and students from Jordan School District were given tours of the TOC. The weather group gave a presentation to the Private Sector Preparedness Council at the Nu Skin Enterprises office.

New RWIS stations at the I-80 exit to SR-201, and the I-70/I-15 junction were brought on line. The new station on I-80 measured 89 mph wind gusts during the February 18 wind storm.

The Parowan Maintenance Supervisor complimented the Weather Operations Group by saying, “[We] really appreciate everything you guys do and the weather reports absolutely nailed this [end of January] storm and allowed me to prepare for it and arrange the scheduling. Thanks for all you guys do.”



### TRAFFIC OPERATIONS AND REPORTING

Involvement includes:

- ❖ The QT/OE Governor's metric.
- ❖ Managed Motorways project.
- ❖ Congestion reporting.
- ❖ Ramp metering wait time study.
- ❖ 10600 South.
- ❖ Gateway to Redwood Road study.
- ❖ Provo/Orem BRT.
- ❖ I-15/I-215 interchange detection upgrade.
- ❖ Thanksgiving Point traffic analysis.
- ❖ Wrong way detection.
- ❖ Redwood Road re-striping effort.
- ❖ I-215/SR-201 interchange analysis;
- ❖ I-15.
- ❖ 9000 South to I-215 weaving analysis.
- ❖ Region support.
- ❖ Sandy City Frontage Road Study.
- ❖ Integrated Corridor Management Study.
- ❖ UTA SW County Transit Study.
- ❖ I-80/State Street EIS.
- ❖ 9000 South/I-15 improvements.
- ❖ 2700 North/I-15, Pleasant View project;
- ❖ Layton Mall over crossing.
- ❖ 600 West Bangerter Design Build project.



### ITS ASSET MANAGEMENT

Two freeway CCTVs along with ten surface street CCTVs, two VMS and a traffic signal were Integrated. The team also assisted ATMS maintenance revise the project acceptance flowchart and developed a spreadsheet to track active freeway lighting maintenance projects.



### **TRAFFIC SIGNAL OPERATIONS**



#### **Region 1**

The 32<sup>nd</sup> and Washington intersection reconstruction and the new signal at Parrish Lane and 1250 West were completed. AWS was installed along US-89 in Davis and Weber counties.

#### **Region 2**

Four uninterruptable power supplies at four intersections were installed. Special event timing plans were run for University of Utah gymnastic events and basket ball games, There were five GRAMA and two Attorney General data requests replied to.

#### **Region 3**

A new traffic signal at State Street and Center Street in Lindon was turned on. A solar powered flashing warning system at US-40 and Daniels Canyon was installed. Special event timing plans were run for the Provo City Center LDS Temple Open House and several BYU basket ball games. A battery backup system at US-6 and Canyon Road in Spanish Fork was installed.

#### **Region 4**

Generator transfer switches at ten signal cabinets throughout the region were installed. Assistance was given to Washington City with grounding maintenance and MMU testing along with both Washington City and St. George City with signal design reviews.

### **ATMS MAINTENANCE**

#### **Field Team**

The field team responded to two critical power issues this month. The first replaced a power transformer on I-80 near Mountain Dell, restoring power to a VSL and a VMS. The second power outage was on I-215. The team worked with Murray City Power, providing them with hardware needed to quickly complete the work. The pole mounted ATMS cabinet at I-15 and 2100 North. was destroyed because of a vehicle knockdown, and the field team stepped up, repurposing a surplus HAR cabinet by salvaging parts from the destroyed cabinet and using other used parts in inventory.

The team met with the Provo Canyon project contractor and ATMS Project Manager to review inspection punch list items and address concerns associated with the project. An LFOT was completed for six sites on SR-92. The team closed 108 work orders.

#### **Lab Team**

The lab team tested and repaired 18 ATMS devices and configured and burned in two traffic signal cabinets. Two VSLs were realigned in Parleys Canyon and a VMS was repaired. Assisted the express lanes with cross training the ATMS field crew. The team also tested several locations at I-15 and I-215 for the Interchange Detection Project and began evaluating a Cohu IP/Analog CCTV. The Lab closed eleven work orders, leaving twelve open. Seven of the twelve open work orders are on hold until detection loops can be replaced.

#### **Express Lanes Team**

The express lanes team closed 56 work orders, rebooted 16 lane controllers and four VTMS. Twenty lane controllers were repaired. A reader was reset and PMs were performed on six cabinets. Two sets of Sensys pucks were replaced and two additional puck sets were rebooted. Two sensors were recalibrated. The team has also been cross training field team members.

### Region 1

- ❖ **Statewide Signal Interconnect:** PineTop Engineering has been working on the design for this to advertise.
- ❖ **28<sup>th</sup> Street and Washington:** Under construction.
- ❖ **SR-126 & 1300 N:** Under construction.
- ❖ **I-15; SR-30 to the Idaho State line:** This project has been designed by PineTop Engineering and is ready to advertise. This project needs major funding for ATMS. This project may be part of a partnership with a telecom.
- ❖ **Layton Interchange:** This project is in design.
- ❖ **SR-127 & 3000 W:** Under construction.
- ❖ **Logan Main Street Fiber Interconnect:** This project has been completed. Integration to the UDOT network has also been completed.
- ❖ **US-89; SR-193 to Cornia Drive:** This project is complete.
- ❖ **US-89; Antelope Drive Extension:** This project is under construction.
- ❖ **Logan CCTV's:** This project has been completed and the 30 day burn in is underway.

### Region 2

- ❖ **SR-201 New Cameras at I-215 W:** A contractor was selected to begin construction of two new cameras in the SR-201 and I-215 West interchange. These new cameras will improve the visibility of the cloverleaf interchange and close a viewing gap in the freeway camera system.
- ❖ **Travel Time detection at I-215 West at I-15:** New detectors are being designed to be added to improve the travel time measurement and traffic counts in the ramp network.

### Region 3

- ❖ **SR-92 CCTV/Hybrid VMS (12641):** Wind storm compromised two wireless connections. Initiated repair work needed to re-start 30 day burn-in.
- ❖ **Saratoga Springs; Pony Express; SR-68 to 800 West (8581):** 30 day burn-in failure. Connector problems. Restarted burn-in.
- ❖ **Region 3 traffic signal connections (12774):** Initiated WTO to connect three signals; SR-198 @ Woodland Hills + CCTV, SR-198 @ 400 North, and SR-198 @ Main St + CCTV in Salem via wireless radio connection.
- ❖ **US-40 CCTV/Signal connections (12805):** STRATA installed connection electronics to eight signals in the basin area. Ordered hub equipment to connect STRATA to Kearns Building in downtown Salt Lake.
- ❖ **Provo Canyon RWIS/VMS (11410):** Resolving punch list items. Identified need to switch out solar VMS sign to wireless modem.
- ❖ **US-189; State Park to Rock Cut passing Lanes (11415):** Project in advertisement. Bid opening in March.
- ❖ **Fiber connection to three Maintenance Sheds (13681):** Integration complete. Started 30 day burn-in.
- ❖ **Spanish Fork; SR-156; 300 South to M.P. 2 (9976):** Project awarded.
- ❖ **Provo; SR-256; 800 East to Univ Ave BRT (10266):** ATMS design of micro fiber and two CCTV's ongoing.
- ❖ **Spanish Fork; Canyon Rd @ 2550 E Signal (10960):** Project in advertisement. Award in March.
- ❖ **Provo; US-89 (300 S); 100 East to 700 East:** Project awarded.
- ❖ **Heber; US-40; 250 South HAWK & 100 North Ped X-ing (14105):** Project awarded.
- ❖ **Lindon; US-89 @ Center St. (12839):** Fiber splicing complete. Began integration.
- ❖ **Ut. Co. Signal Interconnect (13244):** Met with Provo City, American Fork City, and Spanish Fork City to determine city signal connectivity options.
- ❖ **Eagle Mountain; SR-73 @ Mt. Airey Dr. (14163):** Under construction.
- ❖ **Eagle Mountain; SR-73 @ Sunset Dr. (13217):** Wireless radio connection in design.

### Region 4

- ❖ **St. George:** This project is complete, except for some city and UDOT fiber coordination.
- ❖ **Pine Creek Truck Climbing Lane:** This project is nearly complete.
- ❖ **Fiber upgrade for US-6, Helper and Price Signal Integration:** Telecom work has been completed. UDOT is ready to complete the final contractor package for a procurement contract. The package is ready and meetings with Region 4 staff have been scheduled to make sure all certifications and checklists have been satisfied.
- ❖ **Beaver Truck Climbing Lane:** Project is under construction.
- ❖ **I-15; North Beaver to Manderfield:** This project is complete. Solar sites and CCTV locations to be re-located are being mitigated.
- ❖ **Cedar City Fiber:** We have re-bid this project.
- ❖ **Beaver Shed and Fiber HUB:** We have received bids from three contractors and have awarded the contract to Hidden Peak Electric. Due to weather they be looking at April to begin.



### **ITS Standards and Specifications**

- ❖ The February Standards Committee meeting was held.
- ❖ Work was completed on the NEC review. UDOT TOC electrical staff approved the final changes provided by Narwhal Electrical Engineering staff. These recommendations will advance to the supplemental stage after a complete review of each AT series drawing and specification.
- ❖ Work continued to revise the freeway management portion of the AT series standard drawings. A consolidation of the drawings is underway to reduce and re-organize the drawings series.
- ❖ Work on the ATMS solar powered site standards draft general arrangements were examined and refinements are under consideration. Historical data was collected to determine how many and how big (wattage) each “off grid” ATMS sites we have. Thoughts were that standardization could center on the most commonly used sites.
- ❖ A process was started to determine what description belongs on top of a junction box lid. Traffic Signal, Electric, Street Lighting, Fiber Optics, Communication, and such. Several flow charts are under consideration to see if we can better identify the wiring inside a junction box for improved safety to workers.

### **Procurement**

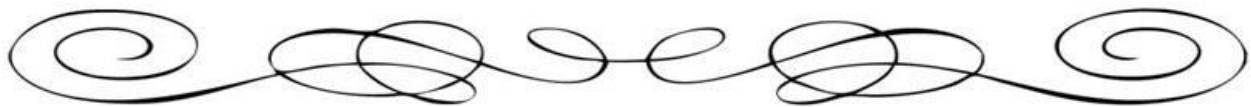
- ❖ The Campbell Scientific and Vaisala contracts will expire in May 2016. A meeting was set up to discuss renewing the contracts for the RWIS weather group.
- ❖ Research on creating a 60 ft. non lowering CCTV pole continued. Valmont was contacted to determine if a similar pole had ever been designed and produced for UDOT and to determine if there were existing shop drawings. Valmont had never produced the pole we had in mind.
- ❖ A meeting was attended with the August Lehman to discuss consultant usage. Alternative approaches to privatization were discussed.
- ❖ A meeting was held to discuss methods of relieving Toll Lane violations and various concepts were discussed.



Blaine did an interview in January with Fox 13 discussing connected and autonomous vehicles. Check out his interview on Fox 13. Link to story is below.

**Utah on the Road toward self-driving cars.**

<http://fox13now.com/2016/02/23/utah-on-the-road-toward-self-driving-cars-officials-say/>





SURE! "CYCLISTS HAVE A RIGHT TO THE ROAD TOO, YOU NOISY, POLLUTING, INCONSIDERATE MANIACS! I HOPE GAS GOES UP TO EIGHT BUCKS A GALLON!"



### Acronyms

<b>CCTV</b>	Closed Circuit Television	<b>DPS</b>	Department of Public Safety
<b>EIS</b>	Emergency Information System	<b>HAR</b>	Highway Advisory Radio
<b>I2TMS</b>	Integrated Interagency Traffic Management System		
<b>ITS</b>	Intelligent Transportation System	<b>LFOT</b>	Local Field Operations Test
<b>MIC</b>	Manager in Charge	<b>MOT</b>	Maintenance of Traffic
<b>RWIS</b>	Road-Weather Information System	<b>TAC</b>	Technical Advisory Committee
<b>TMD</b>	Traffic Management Division	<b>TMS</b>	Traffic Monitoring Station
<b>TOC</b>	Traffic Operations Center	<b>VMS</b>	Variable Message Sign

